

IN THE CLAIMS:

Please AMEND claims 1, 4, 7, 9-12, 15, 19 and 20 in accordance with the following:

1. (CURRENTLY AMENDED) An apparatus for recording data on an optical recording medium, comprising:

a recording waveform generating unit which generates a recording waveform having an erase pattern containing a multi-pulse and a recording pattern containing another multi-pulse, a power level of a leading pulse of the erase pattern being a low level of the multi-pulse and a power level of a pulse between an end point of trailing pulse of the erase pulsepattern and a start point of a leading pulse of the recording pattern being a high level of the multi-pulse; and

a pickup unit which generates light to the optical recording medium according to the generated recording waveform so that a mark or a space is formed on the optical recording medium.

2. (ORIGINAL) The apparatus of claim 1, further comprising: a channel modulation unit which channel modulates data provided from an outside source, and outputs an NRZI data signal to the recording waveform generating unit.

3. (ORIGINAL) The apparatus of claim 1, wherein the pickup unit comprises:

a motor which rotates the optical recording medium;

an optical head having a laser device which generates a laser beam to the optical recording medium or receives the laser beam reflected from the optical recording medium;

a servo circuit which servo-controls the motor and the optical head; and

a laser driving circuit which drives the laser device installed in the optical head.

4. (CURRENTLY AMENDED) An apparatus for recording data on an information storage medium, comprising:

a recording waveform generating unit which generates a recording waveform comprising a recording pattern, an erase pattern having a multi-pulse, and a cooling pulse concatenating the recording and erase patterns, a power level of a leading pulse of the erase pattern being a low level of the multi-pulse and a power level of a trailing-pulse of between an end point of the erase pulsepattern and a start point of a leading pulse of the recording pattern being a high level of the multi-pulse; and

a pickup unit which records with respect to the information storage medium according to the generated recording waveform so as to form a mark and/or a space on the information storage medium.

5. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform generating unit generates a further multi-pulse of another recording pattern, and a cooling pulse as a portion of the multi-pulse of the erase pattern and another portion of the further multi-pulse of the another recording pattern.

6. (PREVIOUSLY PRESENTED) The apparatus of claim 4, wherein the generating unit adjusts a pulse of the recording pattern according to a pulse of the multi-pulse of the erase pattern.

7. (CURRENTLY AMENDED) An apparatus for recording data on an information storage medium, comprising, comprising:

a modulator which modulates input data according to according to a Run Length Limited (RLL)(1, 7);

a recording waveform generating unit which receives the modulated input data and generates a recording waveform which includes a first multi-pulse having a plurality of first pulses to form the recording pattern in response to a first level of the input data and a second multi-pulse having a plurality of second pulses to form the erase pattern in response to a second level of the input data, a power level of a leading one of the second pulses of the erase pattern being a low level of the multi-pulse and a power level of a pulse between an end point of the erase pattern and a start point of a leading pulse of the recording pattern being a high level of the multi-pulse; and

a pickup forming a mark or a space by using the generated recording and erasing waveforms.

8. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform generating unit generates the recording waveform using the input data modulated according to a Run Length Limited (RLL)(1, 7) method.

9. (CURRENTLY AMENDED) The apparatus of claim 1, wherein the recording waveform comprises another recording pattern formed of a further multi-pulse, and the recording

waveform generating unit adjusts a first one of the multi-pulses of the another recording pattern to have a power that is equal~~greater than the power of the pulse between the end point of the erase pattern and the start point the recording pattern~~to a power of a first one of the multi-pulses of the ~~erase pattern~~.

10. (CURRENTLY AMENDED) The apparatus of claim 47, wherein the recording waveform comprises another recording pattern formed of a further multi-pulse, and the recording waveform generating unit adjusts a first one of the multi-pulses of the another recording pattern to have a power greater than the power of the pulse between the end point of the erase pattern and the start point the recording patternother than a power of a first one of the multi-pulses of the ~~erase pattern~~.

11. (CURRENTLY AMENDED) The apparatus of claim 4, wherein the recording waveform comprises another recording pattern formed of a further multi-pulse, and the recording waveform generating unit adjusts a first one of the multi-pulses of the another recording pattern to have a power that is greater than the power of the pulse between the end point of the erase pattern and the start point the recording patternequal to a power of a first one of the multi-pulses of the ~~erase pattern~~.

12. (CURRENTLY AMENDED) The apparatus of claim 45, wherein the recording waveform comprises another recording pattern formed of a further multi-pulse, and the recording waveform generating unit adjusts a first one of the multi-pulses of the another recording pattern to have a power greater than the power of the pulse between the end point of the erase pattern and the start point the recording patternother than a power of a first one of the multi-pulses of the ~~erase pattern~~.

13. (PREVIOUSLY PRESENTED) The apparatus of claim 9, wherein the multi-pulse of the erase pattern has a first pulse power and a second pulse power greater than the first pulse power, and the power of the first one of the multi-pulses of the erase pattern is equal to the first pulse power.

14. (PREVIOUSLY PRESENTED) The apparatus of claim 10, wherein the multi-pulse of the erase pattern has a first pulse power and a second pulse power greater than the first pulse power, and the power of the first one of the multi-pulses of the recording pattern is equal to

the first pulse power.

15. (CURRENTLY AMENDED) The apparatus of claim 9, wherein the multi-pulse of the another recording pattern further comprises a recording pulse having a recording power greater than the power of the power of the pulse between the end point of the erase pattern and the start point the recording pattern first one of the pulses of the another recording pattern.

16. (PREVIOUSLY PRESENTED) The apparatus of claim 1, wherein the recording waveform further comprises a cooling pulse concatenating and included in the erase pattern and an additional recording pattern, the cooling pulse having a cooling power less than a power of a last pulse of the another multi-pulse of the recording pattern and a power of a first pulse of the multi-pulse of the erase pattern.

17. (PREVIOUSLY PRESENTED) The apparatus of claim 4, wherein the cooling pulse has a cooling power less than a power of a last pulse of the recording pattern and/or a power of a first pulse of the multi-pulse of the erase pattern.

18. (PREVIOUSLY PRESENTED) The apparatus of claim 5, wherein the cooling pulse has a cooling power less than a recording power of the recording pattern and a power of a first pulse of the multi-pulse of the erase pattern.

19. (CURRENTLY AMENDED) An apparatus for recording data on an optical recording medium, comprising:

a recording waveform generating unit which generates a recording waveform having an erase pattern containing a multi-pulse and a recording pattern containing another multi-pulse, a power level of a leading pulse of the erase pattern being a high level of the multi-pulse and a power level of a trailing pulse between an end point of the erase pattern and a start point of a leading pulse of the recording pattern being a high level of the multi-pulse; and

a pickup unit which generates light to the optical recording medium according to the generated recording waveform so that a mark or a space is formed on the optical recording medium.

20. (CURRENTLY AMENDED) An apparatus for recording data on an optical recording medium, comprising:

a recording waveform generating unit which generates a recording waveform having an erase pattern containing a multi-pulse and a recording pattern containing another multi-pulse, a power level of a leading pulse of the erase pattern being a low level of the multi-pulse and a power level of a trailing-pulse between an end point of the erase pattern and a start point of a leading pulse of the recording pattern being a low level of the multi-pulse; and

a pickup unit which generates light to the optical recording medium according to the generated recording waveform so that a mark or a space is formed on the optical recording medium.